APPENDIX B

HEMTT ACCIDENT ARTICLES

Information contained in this appendix may be used to enhance instruction contained within this TC. This information was extracted from the following "Countermeasure, Army Ground Accident Reports":

- Article 1 -- Volume 10 Number 5, Issue 89-5.
- Articles 2, 3, and 4 -- Volume 14 Number 6, Issue June 1993.

ARTICLE 1 -- COSTLY HEMTT ROLLOVERS ARE PREVENTABLE

Rolling over a HEMTT can be very expensive. More than 50 HEMTT rollover accidents were recorded in their first 5 years of use. Some of these accidents are as follows:

- As the driver moved to the right to let a convoy pass, the soft shoulder of the road gave way. This caused the vehicle to slide off the right side of the road and flip over.
- As the driver moved as far to the right side of the road as he could to allow the tanks to pass (he had 2,400 gallons of diesel fuel in his truck) the side of the road gave way beneath the load. The truck slowly rolled onto its side.
- As the driver completed a left turn too close to the left shoulder of the road, the left bank collapsed under the weight of the vehicle. The HEMTT rolled into a pond and came to a rest, upside down.
- The driver was attempting a right turn on a 10-foot wide dirt road when the rear wheels slid off the edge. The ground gave way and the HEMTT, which was full of fuel, began to roll. It rolled over two times, coming to rest 40 feet below the road.

If all those accidents sound alike its because they are, and the logical conclusions to be drawn are the following:

- A HEMTT driver should make determined efforts to keep the vehicle on the roadway and away from the edge.
- This principle needs to be given special emphasis in driver training for HEMTT operators. With most other vehicles, staying on the hard surface may not be so important, but the HEMTT is a unique vehicle. It has a high center of gravity, and the "lightest" model (an empty M983 without crane) weighs 32,200 pounds. In a word, "Heavy" is this truck's first name, and it must always be driven with that in mind.
- Because the HEMTTs normal operating environment is the tactical training area, keeping the vehicle under control and upright often calls for a good measure of judgment on the driver's part. When he encounters oncoming traffic on narrow tank trails and back roads, he should decide how far he can safely move to the right. He should then move there, and stop and wait until the other vehicles have passed. He can then resume travel on the most solid portion of the road.

- If the road is so narrow that something must pass on the shoulder, in most cases, that something should not be a HEMTT. Most wheeled vehicles are lighter and have a lower center of gravity; they are thus less likely to cause a cave-in or to rollover. As for tanks, traveling on rough terrain is what they do best.

- In spite of its rollover record, from the standpoint of injuries, the HEMTT is proving to be a big improvement over its predecessor, the GOER. In more than one-third of GOER rollover accidents, the driver was killed. Until 28 July 1989, when the first fatality occurred, no HEMTT driver or passenger had been killed in an accident, rollover, or otherwise.

- To keep injuries down, and to save vehicle damage costs averaging more than $20,000 per accident, driver training should stress, and HEMTT drivers should pay close and constant attention to countermeasures to prevent rollovers and other accidents. Besides staying on the road, actions indicated by a review of accident records include the following:

√- Adjust speed for road and environmental conditions. Slow down for rough terrain, rain or snow, or anything else that reduces visibility, especially curves and corners.

√- Know how to use the Jacobs engine brake along with the wheel brakes to control speed when going downhill. Check that the tachometer reads between 1,650 and 2,100 RPM whenever the engine brake is used. If TOO MUCH braking occurs, set the transmission range selector to a higher range. If MORE braking is required, set the engine brake high/low switch to high.

√- In a convoy, maintain the proper distance between vehicles as prescribed by the convoy commander. Also, STAY ALERT! THE HEMTT appears to have a special talent for rear-ending other HEMTTs.

√- Have at least one ground guide when backing. The driver must keep the ground guide in his sight at all times. The ground guide should stay out of the vehicle's path of travel when possible; if not, he should maintain a distance of at least 10 yards.

ARTICLE 2 -- HEMTT ROLLOVERS ARE ON THE RISE

A soldier was driving an M978 HEMTT fuel tanker, which was second in a three-vehicle convoy, along a narrow forest road. The mission was to set up a FARP for a special mission in a national forest. The convoy was met by an oncoming civilian pickup. The driver pulled his truck onto the shoulder and stopped to let the convoy pass. The lead vehicle moved to the right and passed the pickup, and the HEMTT followed. When the right side of the HEMTT moved onto the shoulder, the tanker began to sink in dirt made soft by recent rains. The tanker then slid 30 feet down an embankment, hitting several large trees in the process. The assistant driver was killed when the right side of the cab was crushed. The driver received only minor injuries.

There is a reason the HEMTT is called a heavy expanded mobility tactical truck. A HEMTT tanker full of fuel needs a good solid surface to support its 62,000 pounds, and soft shoulders simply do not qualify.

A 1989 Countermeasure article reported a rash of HEMTT rollovers associated with road-edge cave-ins and pointed out the need to discuss this very real danger as a part of every HEMTT driver's training. A follow-up analysis of HEMTT accidents in the last 3 years shows rollovers have increased from an average of 10 a year to 12 a year. This latest tragic accident is an example of the potential cost when a driver does not know or appreciate the hazards.

In fact, not just the HEMTT driver but everyone involved in HEMTT operations needs to know about the vehicle's limitations and the necessity to keep it on solid ground. The selected route for the FARP mission did not allow for two-way traffic. The task force operations officer should have ensured a thorough reconnaissance was conducted and established procedures for dealing with oncoming traffic.

In another accident, the driver of an M977 cargo HEMTT was following the blackout drive lights of the lead HMMWV at a 100 meter distance on a dusty tank trail. He was not wearing night vision goggles. The trail inclined to the left, where its edge dropped off into a pool of water 12 feet below. The HEMTT went off the edge and flipped upside down. The driver was trapped in the cab in 30 degree water for about 20 minutes. Besides suffering exposure, shock, and hypothermia, he came down with pneumonia caused by inhaling a mixture of water and fuel.

Another rollover resulted in more than $100,000 damage due to driver (and assistant driver) error. The two were returning from a refueling mission in an M978 HEMTT when the windshield wipers failed during a rainstorm. The crew continued on even though they could not see the road. Where the road went left, the HEMTT driver went right. The front tires sank into the soft ground, and the HEMTT flipped over. The occupants were wearing their seat belts and were not injured.

None of the Army's tactical vehicles meet the criterion that "anybody with a state license can drive one," and the HEMTT, especially, is a far cry from the everyday sedan or truck. Only a driver thoroughly trained in all handling and other unique characteristics of each model can safely operate one.

TC 21-305-1 is available through normal publications channels. Drivers should also be thoroughly familiar with the operator's manual, TM 9-2320-279-10-1. Drivers should also make "Stay away from the road edge" their byword.

ARTICLE 3 -- NO NEW ACCIDENTS FOR HEMTT DRIVERS

Problems that showed up frequently in the last 3 years in HEMTT accidents are the same ones seen in an earlier analysis. All are usually preventable using risk-management techniques.

- Driving too fast for conditions. It was dusk and raining when an M977 cargo HEMTT entered a curve too fast for road conditions. The driver lost control and the vehicle ended up hitting a tree, a fire hydrant, a pole, and a brick wall. Total damage was $13,000.

- Following too close and improper use of brakes. An M978 HEMTT was following another HEMTT in congested, stop-and-go traffic. A vehicle cut in front of the lead HEMTT and the driver slammed on the brakes. The following HEMTT driver hit his brakes also, but nothing happened. He put the Jake brake in high and the transmission in neutral. He then swerved to the right, but his vehicle hit the back of the other HEMTT, causing $8,800 in damage. In stop-and-go-traffic, the air brakes are likely to keep losing pressure and be unable to regenerate pressure as fast as it is lost.

- Failure to use--or to heed--a ground guide. The driver was backing a HEMTT that was towing a HEMTT tanker. He was not paying full attention to his ground guide and turned too sharply, failing to hear the ground guide's warning. The tanker hit an M923A2 5-ton cargo truck, causing extensive front-end damage.

The good news is that, in all three of these examples, the HEMTT occupants were wearing safety belts, and there were no injuries.

ARTICLE 4 -- HEMTT ACCIDENT PROFILE

Since 1986, 382 accidents have resulted in 9 fatalities and 126 injuries. Many of them were costly, at a price of $8.8 million.

- Top accident causes:

  √- Driving too fast for conditions.

  √- Not paying attention.

  √- Following too close.

  √- Improper use of brakes.

  √- Failure to use a ground guide.

- Risk management for leaders:

  √- Ensure HEMTT drivers are thoroughly trained.

  √- Use safety briefings to emphasize controlling speed and driving attentively.

  √- Identify and control hazards through advance planning; reassess before and during mission.

- Risk management for individuals:

  √- Know as much as possible about the vehicle, the mission, and the route.

  √- Give full attention to driving.

The supervisor may put controls into the plans, but the individual puts them into action.